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THE CONSERVATION OF NATURAL RESOURCES.

BY

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
FOREST SERVICE,

Washington, D. C., April 16, 1908.

SIR: I have the honor to transmit herewith the manuscript of a paper entitled "The Conservation of Natural Resources." The substance of this paper was delivered as an address by me before the National Geographic Society, in Washington, January 31, 1908. Because of the importance of the subject I desire to recommend the publication of this manuscript as a Farmers' Bulletin.

Very respectfully,

GIFFORD PINCHOT, *Forester.*

HON. JAMES WILSON,
Secretary of Agriculture.

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THE CONSERVATION OF OUR NATURAL RESOURCES.

A STORY WITH A MORAL.

The conservation of our natural resources is a subject which has received little attention in the past; but the facts in the case are so simple, the principles so elementary, and our duty so clear, that they might be fitly presented in a story like one of the old fairy tales that we all loved when we were boys and girls. Such a story would run like this:

Once upon a time there was a young man who had been given a great property in a distant region and who left home to take possession of it. When he reached his property he first made himself acquainted with it. As he explored it and studied its value he began to think how he would make his living out of it. The problem was not a hard one. He found that his property was wonderfully rich, and supplied his needs at the cost of far less exertion than he would have had to make at home, for it was a fair land, well watered, well timbered, abounding in game and fruits, with broad meadows for cattle and horses and sheep, and with no small store of rare and curious minerals and an outcrop of excellent coal. Life was easy, and he lived lavishly and joyously, after the initial hard work of moving in and building his house and raising his first crops was over. He had far more land than he could use, far more game, and what he lacked he was able to buy from home with furs, with timber, with minerals, and with the surplus of his crops.

By and by he saw and liked a girl and finally married her. Together they prospered on the property, which seemed too rich to make it necessary for them to trouble about the future. Game was still plenty, though less so than at first; the timber, though growing less, was still abundant enough to last longer than they could hope to live; by breaking new land they could always count on marvelous crops; the coal was a little harder to get at, but still close to the surface, and besides the man only dug out the easiest to reach, and when the earth began to cave in he merely started again at a new place. His stock, grazing on the meadows, had trampled out some of the grass, but there was still no lack. That some day strangers would possess their property when they had done with it, and would find it somewhat run down, did not trouble these two good people at all.

But children came to them with the years, and by and by these children began to grow up. Then the point of view of the man and his wife changed. They wanted to see their sons and daughters provided for and settled on this property of theirs, and they began to see that what was enough and to spare for them would not support all their children in the same comfort unless they themselves used it with better foresight. Through thinking of their children they were led to live more in the future.

They looked forward and said to themselves: "Not only must we meet our own needs from this property, but we must see to it that our children come in for their fair share of it; so that after a while the happiness we have had here may be carried on to them." So the family established itself. The man became respected, and his children grew up healthy and happy around him; and when in the fullness of time he passed away and his children took the place in which he had stood, because of his foresight and care they enjoyed the same kind of prosperity he had enjoyed.

It is a perfectly simple story; we all of us can name scores of men who have done this same thing. The men and the women who do it are not famous, are not regarded as remarkable in any way; they are simply good, everyday, average citizens, who are carrying out the duties of the average citizen.

WHAT WE HAVE DONE WITH OUR NATIONAL RESOURCES.

Once upon a time there was a young nation which left its home and moved on to a new continent. As soon as the people who formed the first settlements began to examine the value and condition of this new continent, they found it marvelously rich in every possible resource. The forests were so vast that, in the early days, they were not a blessing, but a hindrance. The soil was so rich and there was so much of it that they were able at first only to cultivate the edges of their great property. It was quite plain to these people in the early times that, however much land they might cover, however much they might waste, there was always going to be plenty left. As time went on they discovered greater and greater resources. They found wonderfully rich deposits of metallic ore; great oil and gas fields and vast stretches of the richest bituminous and anthracite coal lands; noble rivers flowing through broad expanses of meadow; rich alluvial prairies; great plains covered with countless herds of buffalo and antelope; mountains filled with minerals; and everywhere opportunities richer than any nation had ever found elsewhere before.

They entered into this vast possession and began to use it. They did not need to think much about how they used their coal, or oil, or timber, or water—they would last—and they began to enslave

on the supply with freedom and in confidence that there would always be plenty. The only word with which they described what they had, when they talked about it, was the word "inexhaustible."

Let us see for a moment what the course of development of this young nation was. First of all they needed men and women to settle on the land and bring up children and have a stake in the country. That was absolutely necessary before there could develop the great nation which some of them saw ahead. As the population spread there arose a need that great systems of transportation should be built to knit the country together and provide for the interchange of its products. These railroads called for iron, coal, and timber in great quantities. Then began an unprecedented demand upon the forests. They could not build those transcontinental railroad lines without millions upon millions of railroad ties cut from the forests of the country; and they could not mine the iron and coal except as the forests gave them the means of timbering their mines, transporting the ore; and disposing of the finished product. The whole civilization which they built up was conditioned on iron, coal, and timber. As they developed their continent, richer than any other, from the east coast to the west, new resources became revealed to them, new interests took possession of them, and they used the old resources in new ways. In the East, the rivers meant to them only means of transportation; in the West they began to see that the rivers meant first of all crops; that they must put the rivers on the land by irrigation before they could grow wheat, alfalfa, fruits, sugar beets, and other crops that make the West rich. They found that to feed the vast population which had grown up in the East they must have the vast ranges of the West to grow meat. They found that the resources of soil and water which produced the wheat, the cotton, and the meat—of iron and coal, and of timber, together made up the working capital of a great nation, and that the nation could not grow unless it had all of these things. In taking possession of them our nation used them with greater effectiveness, greater energy and enterprise, than any other nation had ever shown before. Nothing like our growth, nothing like our wealth, nothing like the average happiness of our people can be found elsewhere; and the fundamental reason for this is, on the one side, the vast natural resources which we had at hand, and on the other side the character, ability, and power of our people.

Now what have we done with these resources which have made us great, and what is the present condition in which this marvelously vigorous nation of ours finds itself? The keynote of our times is "development." Every man from New York to San Francisco looks to the development of the natural resources to produce the advantages

and the opportunities he wants for his neighbors and his friends. Anyone who questions the wisdom of any of the methods we are using in bringing that development to pass, because he believes we are making mistakes that will be expensive later on, is in danger of being considered an enemy to prosperity. He is in danger of having it thought of him that he does not take pride in our great achievements, that he is not a very good American. But in reality it is no sign that a man lacks pride in the United States and the wonderful things our people have done in developing this great country because he wants to see that development go on indefinitely. On the contrary, real patriotism and pride in our country make it the first of all duties to see that our nation shall continue to prosper. In sober truth, we have brought ourselves into a condition in which the very serious diminution of some of our most necessary resources is upon us.

WHAT WE FACE.

Forest resources.—A third of the land surface of this country was originally covered with what were, all in all, the most magnificent forests of the globe—a million square miles of timberland. In the short time, as time counts in the life of nations, we have been here we have all but reached the end of these forests. We thought it unimportant until lately that we have been destroying by fire as much timber as we have used. But we have now reached the point where the growth of our forests is but one-third of the annual cut, while we have in store timber enough for only twenty or thirty years at our present rate of use. This wonderful development, which would have been impossible without the cutting of the forests, has brought us where we really face their exhaustion within the present generation. And we use five or six times as much timber per capita as the European nations. A timber famine will touch every man, woman, and child in all the land; it will affect the daily life of every one of us; and yet without consideration, without forecast, and without foresight, we have placed ourselves, not deliberately but thoughtlessly, in a position where a timber famine is one of the inevitable events of our near future.

Canada can not supply us, for she will need her timber herself. Siberia can not supply us, for the timber is too far from water transportation. South America can not supply us, because the timbers of that vast continent are of a different character from those we use and ill adapted to our need. We must suffer because we have carelessly wasted the forest, this great fundamental condition of success. It is impossible to repair the damage in time to escape much suffering, although not too late to work hard to reduce it as much as we can.

Minerals, oil, and natural gas.—But forests only begin the story of our impaired capital. Our anthracite coals are said to be in danger of exhaustion in fifty years, and our bituminous coals in the beginning of the next century; some of our older oil fields are already exhausted; the natural gas has been wasted, burning night and day in many towns until the supply has failed. Our iron deposits grow less each year. Our ranges in the West, from which we first drove the buffalo to cover them again with cattle and sheep, are capable of supporting but about one-half what they could under intelligent management, and the price of beef is raised accordingly. Nearly every one of our wonderful resources we have used without reasonable foresight or reasonable care, and as each becomes exhausted a heavier burden of hardship will be laid upon us as a people.

Now what is our remedy? The remedy is the perfectly simple one of common sense applied to national affairs as common sense is applied to personal affairs. This is no abstruse or difficult question. We have hitherto as a nation taken the same course as did at first the young man who came into possession of his new property. It is time for a change.

It is true that some natural resources renew themselves while others do not. Our mineral resources once gone are gone forever. It may appear, therefore, at first thought that conservation does not apply to them since they can be used only once. But this is far from being the fact. Methods of coal mining, for instance, have been permitted in this country which take out on the average but half of the coal. Then in a short time the roof sinks in on the other half, which thereafter can never be mined. Oil and natural gas also have been and are being exploited with great waste and as though there never could be an end to them. The forests we can replace at great cost and with an interval of suffering.

Soil waste.—The soil which is washed from the surface of our farms every year to the amount of a billion tons, making, with the further loss of fertilizing elements carried away in solution, the heaviest tax the farmer has to pay, may in the course of centuries be replaced by the chemical disintegration of the rock; but it is decidedly wiser to keep what we have by careful methods of cultivation. We may very profitably stop putting our farms into our streams, to be dug out at great expense through river and harbor appropriations. Fertile soil is not wanted in the bed of a stream, and it is wanted on the surface of the farms and the forest-covered slopes of the mountains. Yet we spend millions upon millions of dollars every year removing from our rivers what ought never to have got into them.

WASTE THROUGH PIECEMEAL PLANNING.

Besides exhausting the unrenovable and impairing the renewable resources, we have left unused vast resources which are capable of

adding enormously to the wealth of the country. Our streams have been used in the West mainly for irrigation and in the East mainly for navigation. It has not occurred to us that a stream is valuable, not merely for one, but for a considerable number of uses; that these uses are not mutually exclusive, and that to obtain the full benefit of what the stream can do for us we should plan to develop all its uses together. For example, when the National Government builds dams for navigation on streams, it has often disregarded the possible use, for power, of the water that flows over those dams. Engineers say that many hundred thousand horsepower are going to waste over Government dams in this way. Since a fair price for power, where it is in demand, is from \$20 to \$80 per horsepower annually, it will be seen that the Government has here, developed, yet lying idle, a resource capable, under the right conditions, of adding enormously to the national wealth. So also in developing the western streams for irrigation, in many places irrigation and power might be made to go hand in hand.

DANGER OF MONOPOLY.

If the public does not see to it that the control of water power is kept in the hands of the public, we are certain in the near future to find ourselves in the grip of those who will be able to control, with a monopoly absolutely without parallel in the past, the daily life of our people. Let us suppose a man in a western town, in a region without coal, rising on a cold morning, a few years hence, when invention and enterprise have brought to pass the things which we can already foresee as coming in the application of electricity. He turns on the electric light made from water power; his breakfast is cooked on an electric stove heated by the power of the streams; his morning newspaper is printed on a press moved by electricity from the streams; he goes to his office in a trolley car moved by electricity from the same source. The desk upon which he writes his letters, the merchandise which he sells, the crops which he raises, will have been brought to him or will be taken to market from him in a freight car moved by electricity. His wife will run her sewing machine or her churn, and factories will turn their shafts and wheels, by the same power. In every activity of his life that man and his family and his neighbors will have to pay toll to those who have been able to monopolize the great motive power of electricity made from water power, if that monopoly is allowed to become established. Never before in the history of this or any other free country has there existed the possibility of such intimate daily friction between a monopoly and the life of the average citizen.

It has not yet occurred to many of our people that this great power should be conserved for the use of the public. We have regarded it

as a thing to be given away to any man who would take it. We have carried over our point of view derived from the early conditions when it was a God-send to have a man come into the country to develop power and we were willing to give him anything to induce him to come. We have carried over that point of view into a time when the dread of a monopoly of this kind ought to be in the mind of the average man everywhere. That is an instance of a resource neglected from the point of view of the public.

A NEW POINT OF VIEW.

But this is a time to consider not one resource but all resources together. Already here and there small associations of citizens have become possessed of certain facts, and have begun to work at certain sides of what is fundamentally one great problem. We have a drainage association, whose object is to make habitable millions upon millions of acres, now lying waste in swamps all over the country, but capable of supporting in comfort millions of people. We have forestry associations, waterway associations, irrigation associations, associations of many kinds touching this problem of conservation at different points, each endeavoring to benefit the common weal along its own line, but each interested only in its own particular piece of the work and unaware that it is attacking the outside, not the heart of the problem. Now a greater thing is opening out in the sight of the people. This problem of the conservation of natural resources is a single question. Each of these various bodies that have been working at different phases of it must come together on conservation as a common platform. By the joining of these units we shall have a mass of intelligent, interested, public-spirited citizens anxious to adopt a new point of view about this country of ours.

That is the crux of the whole matter—a new point of view about our country. We have been so busy getting rich, developing and growing, so proud of our growth, that we have let things go on until some intolerable abuse has driven us to immediate action. It is time that we put an end to this kind of opportunism, of mere drifting. We must take the point of view taken by the average prudent business man, or man in any walk of life who has property and is interested in it. What the average man does in his own affairs is to foresee trouble and avoid it if he can. What this nation of ours is doing in this fundamental matter of natural resources is to run right into trouble head down and eyes shut, and so make that trouble inevitable before taking any step to prevent it. But it should not take long to reach the stage of national thought where we shall deliberately plan to avoid the difficulties which can be foreseen, if only we can bring together all who have already begun to concern themselves with one or another aspect of the conservation problem.

THE PROBLEM BEFORE US.

This nation has, on the continent of North America, three and a half million square miles. What shall we do with it? How can we make ourselves and our children happiest, most vigorous and efficient, and our civilization the highest and most influential, as we use that splendid heritage? Ought not the nation to undertake to answer that question in the spirit of wisdom, prudence, and foresight? There is reason to think we are on the verge of doing this very thing. We are on the verge of saying to ourselves: "Let us do the best we can with our natural resources; let us find out what we have, how they can best be used, how they can best be conserved. Above all, let us have clearly in mind the great and fundamental fact that this nation will not end in the year 1950, or a hundred years after that, or five hundred years after that; that we are just beginning a national history the end of which we can not see, since we are still young." In truth we are at a critical point in that history. As President Roosevelt has said, we are at the turning of the ways. We may pass on along the line we have been following, exhaust our natural resources, continue to let the future take care of itself; or we may do the simple, obvious, common-sense thing in the interest of the nation, just as each of us does in his own personal affairs.

On the way in which we decide to handle this great possession which has been given us, on the turning which we take now, hangs the welfare of those who are to come after us. Whatever success we may have in any other line of national endeavor, whether we regulate trusts properly, whether we control our great public service corporations as we should, whether capital and labor adjust their relations in the best manner or not—whatever we may do with all these and other such questions, behind and below them all is this fundamental problem, Are we going to protect our springs of prosperity, our sources of well-being, our raw material of industry and commerce, and employer of capital and labor combined; or are we going to dissipate them? According as we accept or ignore our responsibility as trustees of the nation's welfare, our children and our children's children for uncounted generations will call us blessed, or will lay their suffering at our doors. We shall decide whether their lives, on the average, are to be lived in a flourishing country, full of all that helps to make men comfortable, happy, strong, and effective, or whether their lives are to be lived in a country like the miserable outworn regions of the earth which other nations before us have possessed without foresight and turned into hopeless deserts. We are no more exempt from the operation of natural laws than are the people of any other part of the world. When the facts are squarely before us, when the magnitude of the interests at stake is clearly before our people it will surely be decided aright.